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Teacher Education and the teachers' competencies: A view from Primary school pre-service teachers' perceptions.

Master's Thesis

FACULTY OF EDUCATION

Learning, Education and Technology

2020

University of Oulu
Faculty of Education
Teacher Education and the teachers' competencies: A view from Primary school pre-service teachers' perceptions (Larissa Franklin da Silva)
Master's Thesis in Education, 61 pages, 3 appendices
May 2020

Scholars understand competencies as a mixture of abilities, knowledge, skills, and behaviors. Equally, it can be understood as a measure of one's performance. Thus, varied catalogs of teachers' competencies are discussed in the academical set. However, Ding (2016), categorized eight key competencies for the primary teacher. They are: Pedagogical competencies; Curriculum Knowledge; Assessment; Classroom Management; Culture and Cross-Culture competencies; Ethical and Professional Values; Social, Emotional and Communication; and Life-long Learning competencies. This set of competencies was chosen as the base of data collection and helped to categorize the data in the data analysis procedure.

The aim was to explore the teachers' competencies in Primary Teacher Education based on the pre-service teachers' perceptions and to explore the competencies required for the teaching practice in Primary Schools, making a comparison between work field and teacher training under the competencies theme. The study was conducted using a qualitative method, and the data was collected via semi-structured one-on-one interviews and content analyzed. The chosen method for sampling was the non-probabilistic convenience one. The research questions were: What are the pre-service teachers' perceptions of the competencies the Teacher Education provides? What are the competencies the work requires according to the Primary school curriculum? And what are the differences and similarities between the pre-service teachers' perceptions of competencies they have gained and the competencies the Primary Education field actually requires?

As results, this study showed that there is a difference between the competencies pre-service teachers are learning in Teacher Education and the competencies they need in the working field. Also, the relevance of practice was explored as it helps bridge the gap that exists between theoretical knowledge and challenges that are encountered in the classroom. The relatively short time for teaching practice, the low acquisition of teachers' competencies from the student-teachers, and the lack of a mentor's support from University or the school are some of the issues the pre-service teachers are facing that are establishing this gap.

Keywords: Primary Teacher Education, Competencies, Skills, Experience, Theory and practice.

Acknowledgment

My respectable professors are great examples to be followed, and for their commitment to my learning and my colleagues learning, I am very grateful. To my prestigious supervisor, Essi Vuopala, who trusted me, I thank you for the guidance, patience, support, and openness during this whole process. Your vast knowledge and experience were crucial for this work, and it was a great privilege to learn from you.

I dedicate this work to my dear grandma, Gema Werminghoff, who passed away last year, and I thank her for all the patience while I was distant and also for her happiness when we were together. I am also tremendously grateful for my parents and sister, who have always done the possible and the impossible to allow me to succeed in every project I started. It would never be possible for me to study, especially in another country, if it weren't for my parents' hard years of work. For that, and everything else, I will forever be thankful.

To my best friend in the world, Bruna Bechlin Queiroz Lopes, I also thank you for never letting me lose the motivation, even from far away, and thank you for all the moments we shared. Without the help, friendship, and kindness of my classmates and friends, I would also not be able to complete this journey. You all will always be in my heart, and I hope I can care for people around me as much you cared for me.

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1 Introduction

Finnish Education is widely known as one of the best in the world. The teacher in Finland is considered to be the key in the educational process and, consequently, in Finnish educational success (Finnish National Board of Education, 2017). The high exigencies to become a teacher in Finland – where is obligatory to accomplish a master's degree – and the autonomy given to them are significant in this history of triumph (Finnish National Board of Education, 2017; University of Helsinki, 2016). Nevertheless, the connection between the theory from Teacher Education courses and the practice – thinking about everyday work as a teacher – does not seems to be as simple as we aspire it to be.

In Education courses at the University of Oulu, Finland, 1 ECTS equals around 27 hours. And with an offer of 135 hours in a class named Bachelor's Level School Experience, the students-teachers learn about practice (University of Oulu, 2010). In the State University of Western Paraná, Brazil, in the 6th semester the course named Teaching Practice II offers 180 hours of teaching practice in Teacher Education, being around 90 hours for the Primary Education with pupils from 6-10 years old and about 90 hours for younger pupils from 2-5 years-old in Pre-Primary Education. Also, some experience with special needs pupils is present in these same 180 hours (UNIOESTE, 2016, 2017). Now we can ask: are the student-teachers ready or sufficiently prepared for the work-life as a teacher with this number of hours of practice?

The relatively short time of teacher practice – where pre-service teachers have the experience of teaching while being students – is not enough for upcoming the challenges and acquiring or training the teacher competencies for the profession (Kolb, 1984). As it shows in the Intercultural Teacher Education (ITE) curriculum from the University of Oulu (2017a), in Finland:

> The duration of the practice is five calendar weeks. The teaching practice is carried out in a school either in Finland or abroad. The whole practice represents 135 hours of work, consisting of school work, observation of lessons, teaching and co-teaching, and planning. A student should plan and implement at least 20 hours of teaching (at least 12 hours should be carried out independently) (University of Oulu, 2017a, "Assessment methods and criteria" para. 1).

And for the Master's level (last two years of study) of ITE:

> Teaching practice 160h-170h. Practice tied to time and place includes the lessons given and followed, as well as any supervision sessions. Each student gives 60 lessons as individual lessons or in the form of entire school days. Some of the lessons can be implemented through co-teaching (University of Oulu, 2017b, "Assessment methods and criteria," para. 1).

Even though Brazil is a completely different country, some of the same problems are happening. The equivalent course for Primary Teacher Education in Brazil is called “Pedagogy,” and it allegedly prepares the student to be a school administrator, educational advisor, supervisor, and pedagogical coordinator for the school and a primary teacher at the same time (UNIOESTE, 2017).

Otto, Gasson, & Jordan (1979) and Varah, Theune, & Parker (1986) cited lists of concerns that beginning teachers usually have: discipline and classroom management, isolation, evaluation of student work, use of appropriate materials, administrative approval, and communication in the school social setting, heavy teaching loads, and insufficient preparation time, among others.

About these issues, some researchers have the opinion that the pre-service teachers should have the opportunity to fully experience the responsibilities of teaching or they will never be considered sufficiently prepared by any Teacher training course (Houston, Piper, Hollis, & Selder, 1979; Varah et al., 1986).

As stated by some researches, the new teachers do better when supported by a mentor during their first year (Otto et al., 1979; Turunen & Tuovila, 2012; Varah et al., 1986). In this way, the student-teachers in Finland and Brazil might not be having an effective training in practice regarding the time for teacher training practice and the lack of support at the beginning of working life (UNIOESTE, 2017; University of Oulu, 2017b, 2017a).

Another analysis that can be made is that primary teachers are encouraged to work the content in practice, helping the students to experience it (Finnish National Board of Education, 2017). But are the pre-service teachers learning their contents in Teacher Education in practice as well, or are they learning in a more theoretical, traditional, and academic way?

The students, when becoming teachers, tend to teach the same way they have learned. As an example, reported from an experienced situation by Owens (2013): knowing the theory does not assure that the practice will be done according to it. Hence, this issue can become a problem for the students-teachers when they start the work as teachers and, according to Varah et al.

(1986) in a research conducted in the United States, they tend to leave the career in the first five years if not accompanied by a mentor or supervisor.

Few studies have been circling the best solution for this theory vs. practice issue. Supporting and mentoring the new teachers in their first years was proved efficient by Varah et al. (1986). Kolb's theory affirms that it is the experience that drives to the knowledge when talking about learning (Kolb, 1984). And other authors also argue that the experience should come even before the theory studies in the Teacher Education courses (Korthagen, Kessels, Koster, Lagerwerf, & Wubbels, 2013).

Based on earlier studies related to Teacher Education and the teachers' competencies, it can be concluded that much is known about what competencies the teachers, in general, should carry and the importance of Teacher Education. But there is only a limited amount of studies related to understanding how Teacher Education and the teaching practice relate to each other based on student-teachers' perceptions of the teaching competencies. Therefore, this study aims to explore the teachers' competencies in Primary Teacher Education based on the pre-service teachers' perceptions and to explore what are the competencies required for the teaching practice in Primary Schools making a comparison between work field and teacher training under the student-teachers' perceptions centered in this theme.

2 Theoretical Framework

In this section, I present the contents that support my research: The 21st-century skills; The Teacher Education and teachers' competencies; and the importance of experience in Teacher Education. First, the 21st-century skills mold modern society and take a significant part in education once the pupils need to be prepared to succeed in society and working life. In turn, the teacher education and teachers' competencies are essential to understand what the teachers need to provide a proper learning environment to students. Moreover, the experience is part of this study along with experiential learning theories due to its importance in Teacher Education to form prepared and competent teachers who will be responsible for the learning of numerous students. And, naturally, the previous studies on these themes are also considered and presented on the theoretical framework.

2.1 The 21st-century skills

The rapid changes the world is facing due to science and technology requires specific skills from everyone in society. If the necessities change, the strategies also have to change. Thus, in the education field, teachers and students are obliged to participate in this change and adapt to it by creating and learning new skills (Mäkitalo-Siegl et al., 2017).

Examples of these skills are: Problem-solving and critical thinking skills, technology skills, collaboration and communication skills, citizenship and leadership skills, life-long learning skills, creativity and imagination skills (Mäkitalo-Siegl et al., 2017; Westwell, n.d.).

"Researchers and practitioners are becoming increasingly aware that the character of the 21st-century classroom— and thus the demands on both students and teachers—is undergoing significant change" (Dimmock, 2010, p. 1). Thus, the teachers, needing to develop students' new skills, have themselves to be prepared to use and teach these skills.

As said before, if the necessities change, the strategies also have to change. And that's the reason that problem-solving, critical thinking and decision-making skills are crucial. These skills allow teachers and learners to think, analyze and create solutions for problems that are relatively new in our society (Binkley et al., 2012).

Furthermore, technology skills, or Information and Communication Technologies (ICT) skills are an essential part of teaching and assessing in the 21st-century. Using ICT in a pedagogical

relevant way may facilitate and instigate the learning processes (Binkley et al., 2012; Mishra & Koehler, 2006). To have life-long learning skills means that one's can continue studying and learning by itself in or outside formal school or courses, and it can reflect on its learning.

In order to find new solutions, to solve problems and think critically, collaboration and communication skills are also indispensable. Computer-Supported Collaborative Learning (CSCL) and Socially Shared Regulated Learning (SSRL) are examples of methods that bring out new solutions by constructing knowledge using the collaboration and communication skills (Mäkitalo-Siegl et al., 2017).

For Dimmock (2010), competency "is a description of one's ability, a measure of one's performance" (p. 1) and more "A person's competencies may be defined in terms of one's knowledge, skills and behaviors" (Dimmock, 2010, p. 1).

Table 1 Examples of competencies and skills

Eight key teaching competencies (Ding, 2016)	**Preparing teachers for 21st century skills (Mäkitalo-Siegl et al., 2017)**
Curriculum Knowledge	Critical thinking and Problem Solving
Pedagogical Competencies	Collaboration and communication skills
Assessment Competencies	Digital Literacy ICT
Classroom management competence	Citizenship
Emotional, Social and Communication competencies	Leadership
Culture and Crossculture competencies	Creativity and Imagination
Learning to learn competencies	Life-long learning
Professional values, attitudes, and ethical competencies	

Note. Data for teachers' competencies from (Ding, 2016), and for 21st-century skills from (Mäkitalo-Siegl et al., 2017).

2.2 Teacher Education

Teacher education is variable across developed countries; however, there are several patterns that emerge and provide a relevant scope on this phenomenon. In the 20th century, the decision to professionalize resulted in the consolidation of formal academic and professional qualifications and milestones for educators (Calderhead & Shorrock, 2005). Primary education renders an essential foundation in the development and growth of the community; hence, the formalities and approaches taken towards teacher education remain a topic of interest. In particular, much of the attention has been dedicated to training teaching staff to ensure they are competent in helping pupils reach the appropriate academic outcomes (Calderhead & Shorrock, 2005). Therefore, in light of the rapidly evolving world today, there is a need for constant assessment and improvement of standards of teacher education. The paper will evaluate teaching competencies and teacher education from the perspective of primary school pre-service teachers, and determine how this aligns with the ability to provide pupils with the skills they require today.

The concept of teacher education has been widely discussed in the literature as the question "what makes a good teacher?" is complicated to answer and may even appear philosophical (Calderhead & Shorrock, 2005). The unique nature of this practice makes it challenging to determine a single standard, which has been problematic for policy-makers, researchers, and philosophers for centuries. Broadly, a teacher can be classified into several categories that include expert, motivator, facilitator to education, upholder of morality, and a source of inspiration for the pupil (Calderhead & Shorrock, 2005). The primary education system is also essential in this aspect, as this creates the foundation of learning. In the modern world, the pupil population continues to diversify; hence, education and evaluation of competency should expand to providing culturally competent education (Calderhead & Shorrock, 2005).

The value positions and ideologies of teacher education can be identified across different countries and present a perspective on the professional preparation of teachers (Calderhead & Shorrock, 2005). The viewpoints have an impact on both the system and the individual orientations by the teachers on the measures they need to take to become more competent educators. Mostly, the structure of the system plays a significant role in shaping what it means to be a teacher and the expectations from primary education. Therefore, the public language that is used for the discussion of teacher education is also vital as it contributes towards policy in professional preparation rather than merely personal expression or individuality. Inevitably,

the concept of teacher education encompasses the acquisition of specific skills and knowledge that are deemed necessary to teach (Calderhead & Shorrock, 2005). At the same time, it is essential to acknowledge the importance of personal expression and individuality for a comprehensive preparation process.

One significant aspect that is taken into consideration in the process of teacher education is that in primary schools, teachers teach many subjects, which enhances challenges in focusing on subject-specific expertise (Lavonen, 2018). Furthermore, unlike tertiary education settings, the majority of students are not aware of their preferred learning methods. Hence, teacher education for the primary setting should be focused on helping professionals develop these guidance skills as well as cater to a group that has diverse learning abilities.

As a means of adaptation, numerous reforms have been made in teacher education, with much of the attention being placed on purpose and the nature of the position. In the United Kingdom, teacher education reforms have been triggered by professional concerns involving an awareness between some teacher educators that there was a need to enhance the quality and depth of the existing system. Another factor that has contributed to such reforms is the higher profile that has developed on education over the past decade. The public perception of education, as well as the role it played in society, have all contributed to teacher education reforms. In this aspect, Lavonen (2018) states that teacher education has become more embroiled in political and economic arguments. At present, education is one of the key areas that consume public funding and ranks only behind healthcare, defense, and social services. As policies and environments differ between governments, comparing systems is indicative of the complexity of teacher education.

In Finland, one of the most developed education systems in the world, the policies that are applied are often used as an example of high performing education systems (Lavonen, 2018). One strategy that is applied in this system is decentralization, as few of the decisions and frameworks are made at the government level. The responsibility of quality assurance is placed in the hands of the education providers and municipalities. To achieve this goal teachers are highly educated, and all professionals at elementary, middle, and high school levels are mandated to have a Master's degree (Lavonen, 2018). It is different from other countries such as the United States, the United Kingdom, and Brazil, which have a less demanding path to becoming an educator. In fact, in Finland, the need for primary educators to have a Master's degree has been present for 35 years, while secondary school Finnish teachers have required a

Master's level program for more than 100 years (Lavonen, 2018). In short, this shows the impact of emphasis on professional requirements, and the role that government and social factors play in shaping teacher education.

2.2.1 Teacher's competencies

In addition to developing an efficient education system for teachers, there is a need to point out the competencies that are necessary for this position. This provides a guideline in the quality assessment as well as professional development and milestones for the teachers. Marfuga, Turalbayeva, Jandildinov, & Moshkalov (2013) analyzed the possibilities of developing professional competence criteria for future teachers. The authors acknowledge that realization of competencies is a necessity for the modern education system that continues to experience radical changes. The characteristics of competence should be labeled using an objective method. Marfuga et al. (2013) set that competencies enhance awareness of the listeners and their ability to solve problems that arise. In this regard, establishing criteria for competencies helps primary educators prepare for different challenges they will encounter in their occupational setting. Furthermore, it also ensures that teachers are aware of the various tools in their fields as well as their application (Marfuga et al., 2013).

One method of approaching teaching competencies is by classifying them into different categories. According to Marfuga et al. (2013), all competencies displayed in educational systems across North America, Europe, and Asia can be classified into three main groups. These include communicative competencies, which involve communication and social interaction within the academic setting. Secondly, the instructional competencies include the readiness for utilization of external tools and resources, along with preparedness for self-education. As indicated above, there are several aspects of primary education that are highly specific to both the teacher and certain pupils. Therefore, it is paramount that educators are committed to improving their competency skills continuously. A third type is defined as the competence of problem-solving. This involves a readiness to implement solutions using professional skills and other external tools.

Another classification that has been used to categorize competency includes three categories, which are perceptual, ethnocultural, and professional (Marfuga et al., 2013). Perception is important as teachers often need to read their environment and determine the most appropriate actions continuously. This is especially true in the primary educational setting due to the

maturity of the pupils and their susceptibility to external influence (Marfuga et al., 2013). On the other hand, ethnocultural competence is especially crucial in the modern globalized setting, as primary school teachers have to work with a multi-ethnic group of people. There are differences in ethnic groups and their perceptions of education. For example, some groups have a strict and rigid approach towards education and force their children to study extensively for long hours while expecting high grades (Marfuga et al., 2013). This approach has been found to be prevalent among Asian cultures, and the teacher may need to engage these pupils in a way that improves their learning process. On the other hand, some cultures are more open and liberal with their educational approach. Therefore, ethnocultural competence remains a significant factor in primary education. The third competency is professional, which pertains to the skills of the educator acquired through education and training. These competencies are dependent on the setting and are highly variable.

As indicated by the different classifications above, the competencies of educators are multi-faceted and go beyond training and qualifications. Modern teachers should be motivated to provide a holistic educational process for the pupils (Serdenciuc, 2013). Several scholars in this area have pointed out the challenges that are faced by the training of educators as the modern world should adapt to the knowledge society. This has raised the notion of a competency-based education system, with the latter being grounded on extended learning contexts (Serdenciuc, 2013). In light of new and emerging perspectives in education systems and the global economy, teaching-learning competencies should be bespoke towards meeting the needs of the modern pupil. Serdenciuc (2013), comments that in the past decade, schooling has been mainly content centered, which required teachers to emphasize their knowledge on different subject matters. However, the availability of new learning avenue has made access to content easier for all stakeholders, and part of the teaching competencies include guiding the pupils in finding the appropriate source materials.

Teaching education and competencies are areas that are largely determined by their environment and are continually developing to meet the needs of the pupils. As illustrated through the highly effective and functional Finnish system, the training of educators is directly correlated to the quality of education. However, teaching education should extend beyond this aspect and involves individualized attributes that are supportive of the educational process. Teaching competencies serve as an important guide for the expectations of teachers, which facilitates personal development and contribution of the educational setting in improving the quality of its staff.

Ultimately, Ding (2016), reunited several references around the teachers' competencies then restricted it into eight key teachers' competencies (which will be presented later in this study). After reviewing the authors and definitions, the author understands that the conception of competency "should include knowledge, skills, values, and some personal characteristic at least" (Ding, 2016, p. 62).

2.3 The importance of practice in teacher education

Practice plays a significant role in teaching and competencies as it increases the competencies of educators in terms of the pupil needs as well as individual skills. Several authors have stated that the experience is a potential solution to the gap that exists between teacher education courses and the day to day responsibilities in the profession. According to Hennissen, Beckers, & Moerkerke (2017), numerous doubts currently exist regarding the effectiveness of teacher education and the behaviors of pre-service professionals. The theory is a component of teacher education; however, it is not embedded in practice. Hence, scholars have examined the success of the teacher education curriculum in connecting theoretical knowledge to the experiences encountered by pre-service teachers in the educational setting.

Hennissen et al. (2017) found that practice was essential in connecting pre-service educators to real-life experiences, and Ding (2016) states that "University training and school practices are two main stages of the teacher learning key competencies process" (p. 100). Another line that corroborates with these thoughts is from a reporter that accompanied one day in the training school of the University of Helsinki:

> Even though the teacher training period in both class and subject teacher training is only 20 credits, out of the 300-credit Master's degree in total, it really is meaningful and important for the students. The guided teacher training periods offer each student a possibility to try out in practice everything they have learned during their studies. Paramount in teacher training is combining theory and practice (Hannukainen, 2019, " Mean-ing-ful learn-ing and equal-ity in school" para. 4).

Presently, the paper will further explore this concept and determine the role that practice currently plays and should play in the education of primary school teachers. The topic of experiential learning has been applied for many decades as people used apprenticeships and practice-oriented education to acquire different skills. The theory of experiential learning

provides a fundamentally contrasting perception of the learning process and draws some of its concepts from the behavioral theory of learning.

According to Kolb (1984), the experience is the source of learning. In his experiential learning model, the learning is a cyclical process that includes: (1) Experience, (2) Reflection, (3) Abstract conceptualization, and (4) Application of new knowledge. In this model, the phase of Abstract conceptualization is the one in which new knowledge develops for the new/next application and in which the scaffolding from mentor-teachers or university supervisors is necessary, so the experiences are transformed into a new understanding after reflection (Turunen & Tuovila, 2012).

More, still according to Kolb (1984), the label "experiential" is one that is grounded on the theories presented by Lewin, Dewey, and Piaget, while the second reason is to place emphasis on the centric function that experience plays in the educational process of teachers. This position contrasts with previous ideologies that have placed emphasis on the manipulation, acquisition, and recollection of information from teaching education (Kolb, 1984). Therefore, understanding the core components of the experiential theory will aid in determining how it can be positively impacted in practice.

Kolb (1984) describes three models of experiential learning and how they can be applied in the training process. The Lewinian Model posits that there is a correlation between here and now concrete experiences for validation and testing of the skills of educators. The model presents experience as the focal point for teacher education as it provides this profession texture, life, and subjective personal meaning concerning abstract concepts. Many of the areas that are discussed in any educational process are not fully understood through theory, both in terms of their meaning and application (Kolb, 1984). Furthermore, the application of certain concepts into the care process can also be different in the classroom. As primary school work with students that are from different backgrounds and also possess different skills and natural abilities. Therefore, educators continuously have to alter the theories or information that they learn to align with the specific needs of the various educational groups (Kolb, 1984). In this aspect, many principles in teacher education are abstract with minimal information on how they can be adjusted or implemented in the practice setting to cater to a certain student demographic (Kolb, 1984). Hence, at the very least, experience plays a central role in showing educators areas that their theoretical knowledge is lacking.

Another point worth mentioning is that experience has been found to provide teachers with a concrete reference point about their behavior and its application (Kolb, 1984). In addition to the diversity that exists among the students, teachers themselves differ in their personalities and strengths. Hence, the experience is one of the only ways that teachers may accurately identify their strengths or ways that they can align their education with their competencies. In this aspect, it also creates an opportunity for educators to directly validate their knowledge, which is ideal for long term memory and also creates an opportunity for them to be innovative with their approaches. Essentially, practice allows teachers to personalize their experience and create a more comprehensive strategy to assist their students. As illustrated by Kolb (1984), when humans encounter an experience, they are able to concretely and thoroughly apply it as well as share it with their colleagues.

The practice is also essential in teacher education as it aids in the provision of immediate feedback: a concept that is used in social learning in numerous other areas of life (Sugarman, 1987). Furthermore, this has been identified as one of the most effective problem-solving tools as individuals are able to engage different issues in real-time and analyze the applicability of different solutions (Sugarman, 1987). This theory generates information that aids educators in determining if they are deviating from their individual goals or those of the educational program (Sugarman, 1987). Essentially, the cycle that is created by learning through practice is one that helps formulate a constant goal-directed approach that will subsequently benefit scholars and educators. It is also worth mentioning that through this approach, educational institutions and teachers can immediately determine the areas that their program is lacking, which will further contribute to the theoretical knowledge that is shared through training.

According to other scholars such as Dewey, learning through experience is a process that aids in the transformation of feelings, impulses, and desires into actions that are purposeful and impactful in any setting (Schmidt, 2010). Theoretical information alone has less substance for educators and has been found to limit the purposefulness of the actions that are conducted. Dewey notes that the formation of purposes is a complex intellectual operation (Schmidt, 2010). In this regard, purposes are different from desires as they have a higher likelihood of being transformed into actions and solving crucial education problems. Therefore, as experience contributes to the formation of purposeful actions, it should be utilized as a bridge for the gap between theory and practice.

Piaget also introduced a learning model that is applicable to the assessment of practice and theoretical education. According to Piaget, the dimensions of concept and experience are central in the formation and development of adult though processes (Renner et al., 1976). In fact, development starting from infancy is associated with numerous experiences that include contact with the world, and during this developmental process, one transcends from an active egocentric view to a more constructionist and abstract approach (Renner et al., 1976). In this regard, theoretical teacher education alone is not sufficient to stimulate an abstract and constructionist through the process as it is based on hypothetical situations that are not realistic or broadly applied in the educational setting. Essentially, Piaget also states that experiences have been a significant component in the development and acquisition of scientific knowledge. The use of this method is present in areas that have a substantial impact on life and day to day activities such as healthcare, as the practice is an essential component of medical education (Renner et al., 1976). Hence, applying a similar strategy for educators will also play a role in ensuring that they are more competent professionals.

Education is also a unique area as it is a process that is volatile, constantly evolving, and not universal for all stakeholders. The majority of teacher education curriculum focus on the educational process as outcomes, which include the need to complete specific academic tasks or levels to receive a particular qualification (Kolb, 1984). Experience allows teachers to emphasize the process of learning as they have a better understanding of it within the academic setting (Kolb, 1984). In experiential learning, ideas are not immutable and fixed and observed in the theoretical learning process. Moreover, Dewey defines learning as a continuous process that occurs through different stages of life facilitated by experience (Schmidt, 2010). Therefore, similar natural concepts need to be applied to the education of teachers. In fact, some scholars have defined learning as a process of adaptation to the different encounters that are faced in the world (Renner et al., 1976). In order to adequately adapt, it is important for educators to be placed in their environment of practice, and structure the technical information they learn to align with this process.

The concept of holistic adaptation has been a central topic in behavioral sciences as studies have focused on a detailed exploration of human processes of adaptation, such as achievement of motivation, attribution, cognition, and memory (Sugarman, 1987). This has provided insights that could positively contribute to more effective education programs for the teachers. Such studies acknowledge that the learning process is significantly broader than the academic setting and is related to numerous other aspects of life. Therefore, teachers should be able to utilize

different sources and subjects to help their pupils acquire information. This involves creativity, which requires exposure to the environment of practice through experience. Acknowledged some teachers are naturally creative and able to identify ways they can present their information to students outside teacher education. However, there should be a standard established that equips all educators with this skill, and this can be achieved through the development of better teacher education programs.

In conclusion, numerous factors should be taken into consideration when formulating teacher education programs and competencies. In addition to establishing the appropriate content to prepare teachers for their position, there is a need to also consider some of the gaps that exist in the educational approach. Teaching primary school students is a highly dynamic process that requires constant adaptation and application of skills in maximizing the learning process of students. Practice can be used as a bridge for the gap that exists between theoretical learning and implementation of the acquired skills in the educational setting. Increasing practice in teaching education is appropriate in assisting teachers in understanding their individual abilities and how these can be used to improve the learning process for the students. Furthermore, this provides clarity on theoretical concepts that are both effective and ineffective in the practice setting. Therefore, it is important to structure teacher education programs in a way that includes practice.

2.4 Previous studies on teacher's competencies and Teacher Education

Different authors find and study teachers' competencies in different ways and with a different focus. Blašková, Blaško, Radoslav, & Jankalová (2014) studied the key personality competences of university teachers and used a qualitative method (interviews) followed by quantitative method (survey) of collecting data. They compared the competencies defined by the teachers versus the ones described by the students. The finding is that participants consider the personality competencies of university teachers as being: self-reflecting, self-renewing, self-motivating, and self-developing personality competences (Blašková et al., 2014). Even though this study does not have a focus on the primary teachers' competencies, it was necessary to analyze an example of a comparison between two different views: the teachers' and the students' views about the same topic.

Regarding beginning teachers, (Selvi, 2010) chose the Delphi Technique to find a consensual opinion on competencies based on the in-service teachers' and teacher educators' views. The

focus was on English Language Teachers. In turn, Balyer (2017) research was quantitative and based on principles taken from the Council of Chief State School Officers from Washington DC. The scholar demonstrates his results were mostly positive, affirming that the pre-service teachers find themselves as ready and competent for working as a teacher at primary school in Turkey. However, Balyer himself comments regarding the need for a qualitative study where it would be possible to deepener the participants' answers (Balyer, 2017).

Moreover, Ding (2016), after a lengthy review, gathered and described the primary teachers' key competencies, one by one. Furthermore, used questionnaires and qualitative analysis to compare teacher training between China and Catalunia (Ding, 2016). The primary teachers' competencies Ding (2016) stipulates, in summation, were eight: Culture and cross-culture competencies; Professional Values, Attitudes, and Ethics competencies; Curriculum Knowledge; Pedagogical competencies; Classroom Management Competency; Emotional, Communicative and Social Competency; Assessment Competency; and Learning to learn (or life-long learning). These competencies, added to the competencies described by Marfuga et al. (2013), are used as the base for the data collection of the present study.

Marfuga et al. (2013) present six broader division of competencies. As mentioned before, they are Communicative competencies; Informative competencies; Problem-solving competencies; Perceptual; Ethnocultural; and Professional competencies. And they are adopted as the categories for data analysis.

Supporting the present research, studies show problems beginning teachers are facing; the difficulties that the lack of expertise – due to the short time of practice – bring to the in-service teachers; the lack of support on their first years of teaching; the big amount of work; the lack of some essential competencies, etc (Otto et al., 1979; Turunen & Tuovila, 2012; Varah et al., 1986).

An educational movement started in the US around the 1970s. The Competency-Based Education (CBE) was concentrated on the learning outcomes. The intention was, shortly, to make learners able to solve the real-life problems and adapt to the ever-changing reality (Ding, 2016; Serdenciuc, 2013; Zwirtes & Laperuta Martins, 2019).

> One of most popular theory on teacher education is the competency-based-teacher-training (CBTT) theory which is more specific details on the training teacher's key

competencies. This theory has a deeply influence on currently teacher education and training in the world.

> Based CBTT, researches reached a common view that knowledge, skill and attitudes are three bask factors of teacher competences. However, there is a uniform standard on what kinds of knowledge, skills or attitudes should be trained to the future primary school teachers (Ding, 2016, pp. 60-61).

However, other publications, in particular, a study from two Brazilian researchers (Zwirtes & Laperuta Martins, 2019), refute the whole idea of competencies in education. As the researchers say: other studies are already questioning the competencies approach, and they instigate a new formulation on the national curriculum for basic education. In their view, the CBTT is a way to teach the adaptation to reality and not a way to give the potential to transform it. And, for that to happen, they say that another possibility is to raise awareness on teachers so they can start reflecting about it and, with that, start changing the way they teach (Zwirtes & Laperuta Martins, 2019).

Besides, the studies – in big or small scale – that we found are commonly local, and some of them compare the topic in two different countries. It seems researchers are studying the Teacher Education or the teachers' competencies, particularly in their local community. Basing the framework on worldwide data but evaluating empirical data only from their current local or places they already have access. As few examples: Ding (2016) as cited before, studied and compared the teacher training between China and Catalunia; Balyer (2017) gathered data from universities in Turkey with positive results about their feeling of readiness to start working as teachers; Malinen, Väisänen, & Savolainen (2012) did a national study in Finland about its teacher education; Pantić & Wubbels (2010) study was in Serbia about the in-service teachers and teacher educators' view about the teachers' competencies.

For further studies, a comparison between Teacher Education and teachers' competencies in different countries would be of great value to enrich the knowledge about these issues and take researchers further, with a broader view. However, as the present research is following this same path in order to understand possible gaps in Teacher Education in Finland and Brazil, we understand the complexity of an extensive study involving different countries and institutions.

3 Aim and research questions

These research aims are to explore the teachers' competencies in Primary Teacher Education based on the pre-service teachers' perceptions and to explore the competencies required for the teaching practice in Primary School making a comparison between work field and teacher training centered on this theme.

The research questions are three:

a) What are the pre-service teachers' perceptions of the competencies the Teacher Education provides?

b) What are the competencies the work requires according to the Primary school curriculum?

c) What are the differences and similarities between the pre-service teachers' perceptions of competencies they have gained, and the competencies Primary Education field actually requires?

4 Methodology

The research was conducted using a qualitative method, and the data was collected via semi-structured one-on-one interviews and content analyzed. The chosen method for sampling was the non-probabilistic convenience one (Creswell, 2012).

About the qualitative approach, Wilson (1998) states that: ”Its aim is to not only to understand the world but to understand it through the eyes of the participants whose world it is.” (p. 3) Since the students’ perceptions were a significant factor in understanding the phenomenon, I, as a researcher, opted to follow a qualitative approach and use in-depth interviews with semi-structured questions.

In comparison with quantitative methods, Datta (1994), explains:

> The qualitative paradigm is characterized by acceptance of subjective information and skepticism about objective measures; by emphasis on a rich, comprehensive, in-depth understanding of what has happened as the meaning of events to those involved; and by emphasis on an additive approach to explanations in which understanding is considered complete only when all the available information can be incorporated into a satisfying pattern, and there is no inconsistent information that has been ignored. (p. 59)

Therefore, this study was conducted respecting the qualitative premises and following the most suitable methods in order to reach a good understanding of the phenomenon.

4.1 Context and participants

Since this research focused on the future teachers' perceptions, the focus group was the student-teachers in their last years of study. Moreover, the reasons the Primary Education was the chosen context are given to the fact that teachers are still working more holistically, working every day with the same group of pupils, and the teaching is not yet focused on specific content (e.g. Mathematics, History, Language). The interviewed students were from Primary School Teacher Education programme, Oulu University, Finland, coursing fourth and fifth grades, and equivalent programme and grades from Universidade do Oeste do Paraná - UNIOESTE (University of Western Paraná), Brazil.

In Brazil, the equivalent course for Primary Teacher Education is called "Pedagogy," and it qualifies the students to work with Pre-Primary Education (age 2-5), Primary Education (age

6-10), and to act as a coordinator and counselor in the school. For that, four years of study, partial time, is needed. And it is a Bachelor's degree level (UNIOESTE, 2016, 2017).

In Finland, a Master's degree is needed in order to be a Primary School Teacher. And the Teacher Education course, including Bachelor's and Master's studies, has five years of duration. In the Finnish system, the graduated teachers work with pupils between 6-12 years-old (Finnish National Board of Education, 2017; University of Oulu, 2018). Details about Finnish and Brazilian educational systems are shown in Figure 1.

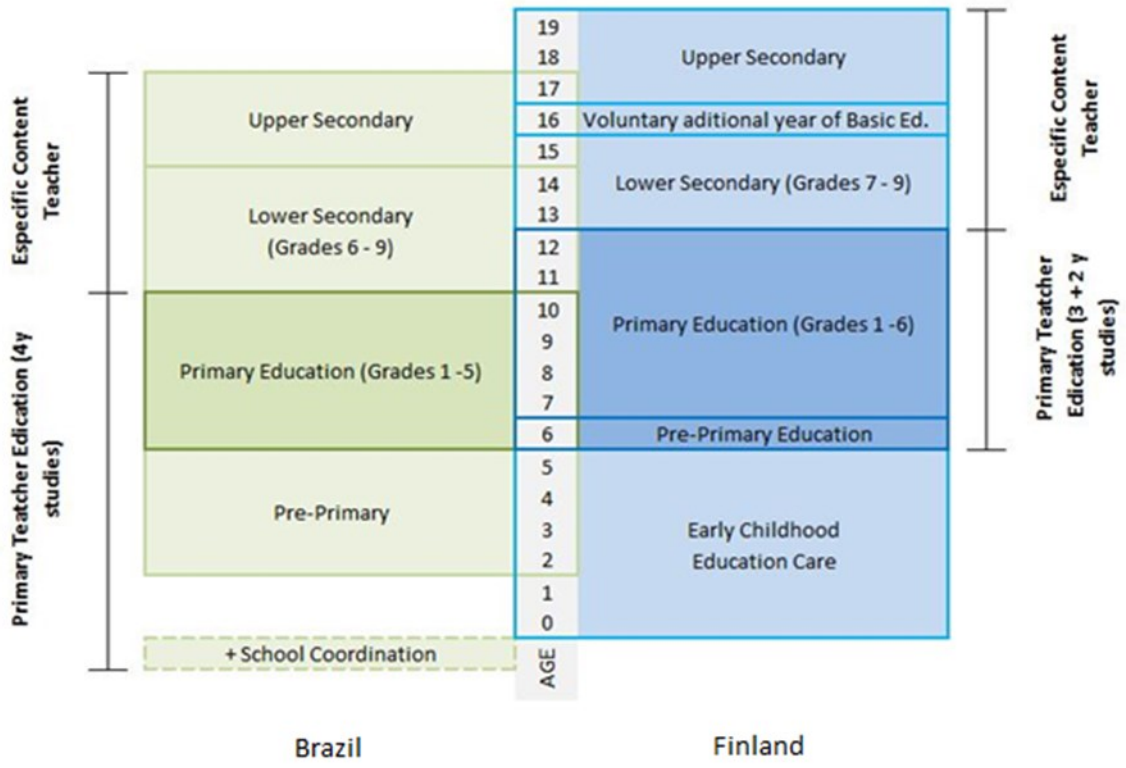

Figure 1 Finnish and Brazilian Basic Education systems compared. Data for Brazil from (BRASIL, 1996; UNIOESTE, 2016, 2017), and for Finland from (Finnish National Board of Education, 2017; University of Helsinki, 2016; University of Oulu, 2018).

Eight students participated in the interviews in total. The participants had the age between 23 and 31 years old, being half of them taking their second bachelor's degree. And even though they were in their last years of studies (final and penultimate), two of them hadn't had the opportunity to start the teaching practice phase yet.

It is important to explain that the time student teachers expended in teacher training for Primary Teacher Education, described in this research, is related to the whole training, which can include

face to face classes at the University, lesson planning for the teaching practice, evaluation from the University, observation, and lessons with the presence of the official teacher. And the time student-teachers spend actually teaching and training the teacher competencies in practice is around 20 hours for each practice course (UNIOESTE, 2016, 2017; University of Oulu, 2017a, 2017b).

Table 2 Basic information and experience of participants

Participant number	Country	Year of study	Approximate time expended in teacher training	Time of professional experience in teaching or related
1	Finland	4th and 5th	135-305 hours	1 year
2	Finland	4th	135-305 hours	No experience yet
3	Finland	5th	135-305 hours	5 years
4	Finland	5th	135-305 hours	No experience yet
5	Brazil	3rd	Hadn't started at the time	No experience yet
6	Brazil	3rd	Hadn't started at the time	6 months
7	Brazil	4th	248 hours	6 years
8	Brazil	4th	248 hours	1 year

In table 2 is shown the basic information of interviewees and each participant was represented by a number (e.g. P1, P2, P3), and no personal information was revealed in order to ensure anonymity.

4.2 Data collection procedure

The data was collected from December 2018 to March 2019 due to a setback to find participants. Four of the interviews took place face-to-face and the other four via Skype due to distance or time constriction from the interviewees' part.

The invitations for participation as interviewees in this research data collection were sent via email or made in person while visiting Teacher Education classrooms with the teachers' previous approval. The interviews were semi-structured, and the researcher followed the same interview protocol with all the participants (See Appendix 1). The mentioned interview protocol consisted of 13 questions in total, divided under two research questions, and prompts and alternative questions supported it.

Before each interview, an introductory text was read to contextualize about which teachers' competencies and based on which references this research was being conducted. However, they were free to contribute in any way they wanted. After the mentioned introduction, ethical issues as anonymity, free participation, and consent for audio recording were discussed.

Half of the interviews were made in Portuguese, transcribed, translated, and finally analyzed. The other half was in English and followed the same steps, only not needing to be translated. The interviews had an average of 40 minutes each, and they were audio recorded. Sonix software assisted the transcriptions in both languages, and Microsoft Excel helped with the categorization of the text.

It was also used bibliographic data for answering RQ2, and the procedure of selecting the materials will be explained below by steps (See table 3). In the phase of identification, steps 1 and 2 were to identify scientific databases available and, after that, identify the first list of papers for possible use that were related to the theme. A publication date filtration was used in order to find first the newest documents about the topic, just for the sake of this researcher's interest. Yet, no article was excluded just because of the publication date. In step 3, during the screening phase, the materials started being excluded by title, by abstract information, by the full text, and finally by not being available for reading. This led to a new and smaller list of articles that were screened and reorganized by the level of relevance and affinity with the topic of the research question 2. That was step 4 in the confirmation phase. And, finally, after confirmation, in step 5, the articles included were reread to use in the study. Both empirical and bibliographic studies materials were considered equally. (See table 3).

Table 3 Procedure of selecting materials divided by steps

STEP 1	Identify scientific databases	IDENTIFICATION
STEP 2	Identifying a primary list of papers related to teachers' competencies	
STEP 3	Exclude by title Exclude by abstract Exclude by full text Exclude by not being available	SCREENING
STEP 4	Screen and organize the new list of papers by level of relevance for this study	CONFIRMATION
STEP 5	Reread the articles included	INCLUDED

Note. Adapted from "A Decade of Research on the Use of Three-Dimensional Virtual Worlds in Health Care: A Systematic Literature Review" by Ghanbarzadeh, Ghapanchi, Blumenstein, & Talaei-Khoei, 2014, Journal of Medical Internet Research, 16(2):e47.

4.3 Analysis procedure

The analysis procedure aimed to identify which competencies the student teachers were able to recognize they were learning from Primary Teacher Education and which competencies they believed would be essential for them in the work field. Additionally, the challenges they faced during the studies were reported. After transcribing the interviews, the most relevant passages were identified.

The first step was to find the answer to research questions 2 with the help of previous studies. The eight key competencies for primary school teachers from Ding (2016) were classified as being the subcategory and the six broad competencies from Marfuga et al. (2013) as being the category.

Table 4 Coding categories and sub categories

Category	Sub category	Coding rule/ definition	Example
Informative	Learning to learn (life-long learning) Competencies	Being a life-long learner. Being open minded, having independent study habits and methods, and having motivation on improving and self-improvement. Capacity to learn from others.	"University gave me a lot of space to be the gestor of my own learning and I was".
Professional	Curriculum Knowledge Competencies	Competencies and knowledge about the curriculum (e.g. subject matter, planning).	"We did a lot of lessons planning during the course, but not everyone recognizes its importance".
	Assessment Competencies	Being capable to assess students accurately and using appropriate methods. Capable of giving feedback to students and parents.	"The course didn't cover the assessment in the content part".
	Professional Values, Attitudes and Ethical Competencies	Having a strong sense of responsibility, and sense of laws and regulation. Having clear ethical commitment and having the ability to transfer those values on educational activities (e.g. trust, honesty, respect, equality, integrity, service). Having autonomy and initiative in education work.	"And also, they have tried to make us think about ethical issues and that kind of components".
Problem-solving	Pedagogic Competencies	Knowledge of the Educational science foundations, children's development and teaching and learning processes. Using accurately new technologies in teaching, having creativity and critical thinking ability. Having ability of researching on teaching content and on organizing the instructional processes.	"I have got a lot of didactic tools and of course I can use some of them". "We have learned how to take from theory the base for practice, also to criticize the information we have".
Communicative	Emotional, Social and Communication Competencies	Recognize own and others emotions. Having skills to express own emotions and skills of communication with students, parents and colleagues. Also having a sense of social service.	"So being aware of the social aspect of teaching. I think that's really been emphasized during the studies".
Perceptual	Culture and Cross-culture Competencies	Having self-aware on culture and understanding different cultural background of students. Respecting different cultures, traditions and values and having the ability of inclusion and diversity all students in school.	"Understanding students and realizing that there are many different types of student and, well, in general there are many different types of people in the world".
Ethno cultural	Classroom Management Competencies	Effective management of teaching space and guiding pupils' correct behavior and self-discipline.	"I did not learn about classroom management. They did talk about it superficially".

Note. Teachers' competencies for categories, sub-categories and coding rule from Ding (2016) and from Marfuga et al. (2013); and examples are data driven.

Before dividing the data from interviews into the categories, I first explored the transcriptions to locate every mention on the competencies, as can be seen in appendix 3. Next, as the second step, the participants' contributions were divided into the subcategories based on the mention of one of the eight competencies. And thirdly, each mention was followed by the opinion/information: if it was positive, negative, positive and negative at the same time, or neutral experience. And "-"for the not commented topics, as can be seen in table 5.

Table 5 Coding interpretation

Category	Condition	Example
Pos	When the participant shows a positive opinion	"University gave me a lot of space to be the gestor of my own learning and I was".
Neg	When the participant shows a negative opinion	"The course didn't cover the assessment in the content part".
Neutral	When the opinion is not positive nor negative	"And also, they have tried to make us think about ethical issues and that kind of components".
Pos/Neg	When the opinion is positive and negative	"I believe yes, we leave university prepared, but only partially, not completely prepared".
-	When there is no comment about this topic	-

The participants' opinions analyzed were the opinions concerning the competencies Teacher Education courses (in Brazil and Finland) were teaching or not.

In this way, a positive opinion means that they recognized the course taught about that competency in, at least, a sufficient way. A negative opinion means that the course was not able to prepare them in that topic or the topic was not present in the course. A positive and negative answer means that the participant had a positive and negative opinion about the ability of the course to deliver that information at the same time. A neutral opinion means that the participant did not have a clear positive nor negative view. A line "-" means that the participant did not mention the topic at any time during the interview.

The fourth step was to repeat the same mechanism to analyze the students' perceptions of data-driven specific topics such as: participants' perceptions about their 21st-century skills, ITC skills, special needs knowledge, about the time for practice in T.E, and their opinion about feeling or not prepared to start working as a teacher, for example.

The analysis of the competencies primary teachers should have after they graduate from Teacher Education was not made with the school curriculum once these documents do not show clearly which are these competencies. Not the Finnish nor the Brazilian ones. Thus, a search was made amidst previous researches, from different countries, to find out a satisfactory answer.

By means of studies from researchers as Ding (2016), Nessipbayeva (n.d.), Balyer (2017), Marfuga et al. (2013), Learning Matters (2018), Council of Chief State School Officers (2016), and others, it was possible to find key competencies that should be shown by primary school

teachers. These studies were compared, and Ding's eight key competencies were used as the base for the analysis since the studies complement each other, and Ding's is the most complete and suitable for this research for being specifically about primary teachers' competencies. This is better explained on the results section (See tables 8 and 9). Finally, the fifth step was to answer research question 3 by comparing the results from research questions 1 and 2.

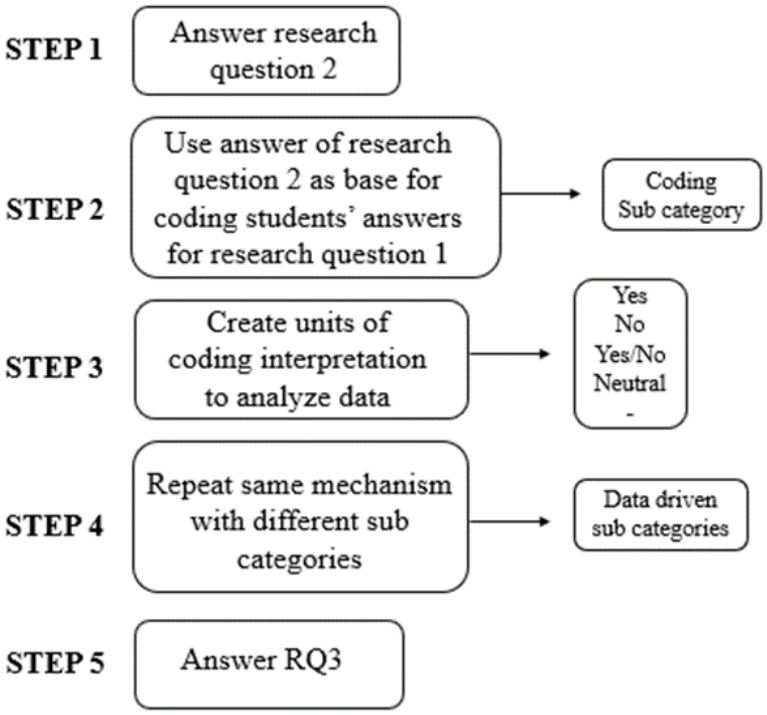

Figure 2 Steps of analyses

5 Results

5.1 Pre-service teachers' perceptions of the competencies the Teacher Education provides

The students interviewed were able to recognize that their education provided some competencies of a Primary School Teacher more than others' competencies. According to the participants' perceptions, Culture and Cross-culture Competencies, Curriculum Knowledge Competencies, and Pedagogical competencies were mostly seen as positive.

"We have learned how to take from theory the base for practice, also to criticize the information we have (P5)".

"We did a lot of lesson planning during the course, but not everyone recognizes its importance (P1)".

On the other side, Classroom Management Competency; and Emotional, Communicative and Social Competency were not discussed during classes according to the majority.

"I did not learn about classroom management. They did talk about it superficially (P7)".

Learning to learn (or life-long learning) Competency was mentioned by only one participant, and it was positive. The same happened to Assessment Competency, but it was mentioned negatively. Being both mostly not recognized by interviewees as present during their studies. In addition, the participants emphasized that any competency they learned was learned only, or more, in theory.

"I think that the hope for everyone is that when we are doing those plans as a task that we could somehow use them in the future. But inside the course you don't have space to use it (P1)".

"Participant: One thing they talk about the competencies is like… You work with the student's culture, use the available technology. Because the pupils are completely different from pupils from a while ago, right? So, they are in a technological environment almost in integral time, so you need to use that to better reach them. Researcher: So, you said they talked about that, but did you have any practice that enrolled these competencies or abilities? Participant: During the course, I didn't. But since I am working in Pre-primary and Primary Education, it helped me a lot in practice, there, in the classroom, but not during the course itself (P7)".

In their perception, their education did not offer practical studies on these subjects, and the teachers' training period was too short considering all the competencies and skills they would need to take into account when working as a teacher. The practice helped, or was considered as a positive experience, for half participants. But seven of the eight participants, almost unanimity, found the teacher training time not sufficient.

"I believe not, I believe is not sufficient (P5)".

"Very little time, it is not sufficient (P7)".

It is essential to mention that during the interviews, sometimes the students didn't clearly recognize the fact that they had learned about a specific competency. Still, it was possible to acknowledge later from the text, during data analysis, that they had the knowledge regarding it. And, once a participant mentioned a particular competency and implied that he or she learned about it in Teacher Education course – or implied that did not learn about it – that Competency would be counted as positive, negative, neutral, positive and negative, or absent (See table 4).

And, at last, the Professional Values, Attitudes, and Ethical Competencies were recognized by two interviewees. One having a positive perception about it and one having a neutral perception.

"And also, they have tried to make us think about ethical issues and that kind of component (P4)".

"I learned about that. That was always present in the course (P7)".

We do not recognize patterns on one participant being excessively positive or negative.

Table 6 Perceptions about the eight key competencies

Competencies / Mentions	P1	P2	P3	P4	P5	P6	P7	P8
1. Curriculum Knowledge Competencies	Pos/Neg	Pos	-	-	Neg	Neg	Pos/Neg	Pos
2. Pedagogic Competencies	Pos	Pos/Neg	Pos/Neg	Pos	Pos	Pos	Pos	Pos
3. Assessment Competencies	-	-	-	-	-	-	Neg	-
4. Classroom Management Competencies	-	Neg	Pos	-	-	-	Neg	Neg
5. Emotional, Social and Communication Competencies	-	Pos	-	Neg	-	-	-	Neg
6. Culture and Cross-Culture Competencies	Pos	Pos	Pos	Neg	-	-	Pos	-
7. Learning to learn (or life-long learning) Competencies	-	-	Pos	-	-	-	-	-
8. Professional Values, Attitudes and Ethical Competencies	-	-	-	Neutral	-	-	Pos	-

Table 6 is divided between the eight key competencies chosen as the base for this research in the vertical direction, and the eight interviewed participants in horizontal. Participants' perceptions about the mentioned competencies are shown into respective interpretations (See in Table 4). The green highlights are marking the competencies with the majority positive perceptions of the participants' answers. And, as we can see, from eight themes, only three are in the majority positive. Being the other five topics mostly not recognized by the students.

Table 7 Perceptions on another topics

Competencies / Mentions	P1	P2	P3	P4	P5	P6	P7	P8
Recognize teachers' competencies as being a complex mix use of abilities, skills, knowledge, attitudes	Pos	-	Pos	Pos	-	Pos	Pos	Pos
Practice (internship)	Pos	Pos	Pos	Neg	Pos	Neg	Neg	Neg
Do you feel ready/prepared to be a teacher?	Yes*	Yes/No	Yes*	No	-	Yes/No	Yes*	Yes*
About ICT skills	Neg	Neg	-	Neg	-	-	-	-
About special needs knowledge	-	Neg	-	Neg	Pos	Neg	-	-
Learned tools to work as a teacher	Pos	Pos	Pos	Pos	-	Pos	-	-
Comments about 21st century skills	-	-	-	Neg	-	-	-	-

However, table 7 shows the participants' comments and perceptions about other themes besides the eight key competencies from Ding (2016) (e.g. other competencies, teacher skills, ICT skills). Participants' perceptions are also coded into the same interpretation of positive, negative, positive and negative, neutral, or absent. And, again, green highlights are marking the items with majority positive perceptions on the participants' answers, which are: a) The recognition of the teachers' competencies as being a complex use of knowledge, attitudes, and skills, in a particular context; b) If the student-teacher feels ready or prepared to work as a teacher; c) If the student learned tools to work as a teacher.

Furthermore, the answers marked with an asterisk "*" on the third item means that participants believe that their feeling of readiness is due to extracurricular or previous professional experience. Being four positive answers from extracurricular experience, one negative response, one participant did not answer clearly about his/her perception and two answers that were positive and negative at the same time. In summation, we can see very divided opinions about feeling prepared to work as a teacher. And as examples of positive and negative (at the same time) answer about feeling prepared we can see:

"So, I believe that on the nocturnal period [of studies], we cannot learn everything, so we leave [the university] prepared. But partially prepared, not completely (P6)".

"Researcher: Do you feel prepared to work as a teacher? Interviewee: Yes and No. I feel I have learned a lot, and I'm way more prepared than I was like four and a half years ago (P2)".

Again, we can see divided opinions about the teaching practice time. And although two participants did not have the practice course yet, they knew what the credits and practice time they would have, and they did answer based on that are.

In the results, we also have mostly absent opinions about having ICT skills and special needs knowledge. Being three negative answers about each one of them, and one positive answer about special needs knowledge. And almost no comments about the 21st-century skills, having only one negative perception about it. Positive perceptions appear as the majority only in the question about recognizing that the teachers' competencies are the ability to meet complex demands in a specific context and the question about having learned the tools to work as a teacher, which is very similar to the Pedagogic Knowledge competencies mentioned before.

5.2 The competencies the work requires

Unfortunately, the information on which competencies are needed in the Primary School Teacher in the work field was not shown in the Finnish National Core Curriculum of Basic Education nor the Law of Directives and Bases of Brazilian National Education. Only the minimum education required to teach was present in the Brazilian document (BRASIL, 1996; Opetushallitus (2016). Curriculums usually show the competencies students should learn. For example, the Finnish National Core Curriculum points seven transversal competencies of basic education: Thinking and learning; Cultural competencies, interaction and expression; Taking care of oneself, managing daily life; Multiliteracy; Digital (ICT) competence; Working life competence, entrepreneurship; Participation, involvement, building a sustainable future (Halinen, 2018; Opetushallitus, 2016). These basic education competencies are related to the teacher's competencies since the society in which teachers and pupils live is the same, and the skills to live in it and to succeed are necessary for everyone. Also, the teachers have the responsibility to raise these competencies among the learners, so the teacher has to be already aware and used to it before entering school.

Figure 3 Transversal competencies in basic education in Finland. Reprinted from The new educational curriculum in Finland by Halinen, 2018, retrieved from http://www.allianceforchildhood.eu.

Unfortunately, the information on which competencies are needed in the Primary School Teacher in the work field was not shown in the Finnish National Core Curriculum of Basic Education nor the Law of Directives and Bases of Brazilian National Education. Only the minimum education required to teach was present in the Brazilian document (BRASIL, 1996; Opetushallitus, 2016). Curriculums usually shows the competencies students should learn. For example, the Finnish National Core Curriculum points seven transversal competencies of basic education: Thinking and learning; Cultural competencies, interaction and expression; Taking care of oneself, managing daily life; Multiliteracy; Digital (ICT) competence; Working life competence, entrepreneurship; Participation, involvement, building a sustainable future (Halinen, 2018; Opetushallitus, 2016). These basic education competencies are related to the teacher's competencies, since the society in which we live is the same and the skills to live in it and to succeed are necessary for everyone. Also, the teachers have the responsibility to raise these competencies among the learners, so the teacher has to be already aware and used to it before entering school. Halinen (2018) states:

> According to the national core curricula (2014, 2015, 2016), transversal competence refers to an entity consisting of knowledge, skills, values, attitudes, and volition. Competence also means the ability to apply knowledge and skills in a given situation or context. The manner in which students use their knowledge and skills is influenced by their values and attitudes, and their willingness to take action (volition). Transversal competences cross the boundaries of disciplines and link together different fields of knowledge and skills. (p. 84)

Furthermore, the Primary School Teacher specific competencies are discussed in some articles and other references, which will be mentioned ahead. To answer this RQ it was found seven main authors and institutions from different countries that did research the teachers' competencies. Each of them with a distinct method or a distinct focus - that will be dismembered in the review of earlier researches sections -, but all with the common idea of discussing and clarifying key competencies the teachers should have.

As the author Olga Nessipbayeva (n.d.) reminds us, the word "competency" is largely used, and Teacher Education is one of the contexts we can find it. In this context, competency can be understood as "more than just knowledge and skills; it involves the ability to meet complex demands by drawing on and mobilizing psychosocial resources (including skills and attitudes) in a particular context" (Nessipbayeva, n.d., p. 150).

The same author describes what she calls "The 21st-century teachers' competencies" as being when: Teachers demonstrate leadership; Teachers establish a respectful environment for a diverse population of students; Teachers know the content they teach; Teachers facilitate learning for their students; and Teachers reflect on their practice (Nessipbayeva, n.d.).

The European Commission (2013), with the participation of Sweden, Netherlands, Estonia, Belgium, and Ireland also gathered some indispensable teachers' competencies, which are: Specialist knowledge of the subject(s) they teach; The necessary pedagogical skills to teach them; Teaching to heterogeneous classes; Making effective use of ICT; and Helping pupils to acquire transversal competences (European Commission, 2013).

In a congress in Washington-DC, the Council of Chief State School Officers (2013), an institution of North America, assembled ten of what they called the Teaching Standards. Learner Development, Learning Differences, Learning Environment, Content Knowledge, Application of

Content, Assessment, Planning for Instruction, Instructional Strategies, Professional Learning, and Ethical Practice, and Leadership and Collaboration (Council of Chief State School Officers, 2013). And in another congress in 2016, the council assembled again ten standards for teachers being a continuation of previous congress decisions. Only simpler and better explained (Council of Chief State School Officers, 2016). (See table 8).

In Turkey, "Selvi (The English language 4) carried out research regarding the professional competencies of English Language Teachers. The Conventional Delphi Technique was applied in order to constitute the competencies of new teachers based on the teachers' and teacher educators' views" (Selvi, 2010, p. 168). The Teachers' Professional Competencies gathered were: Field Competencies; Research Competencies; Curriculum Competencies; Lifelong Learning Competencies; Social-Cultural Competencies; Emotional Competencies; Communication Competencies; Information and Communication Technologies (ICT) Competencies; and Environmental Competencies (Selvi, 2010).

Yet, teachers' standards in the United Kingdom are presented in a document called Learning Matters (2018). And again, the central competencies for the teachers are, in other words, the curriculum knowledge, pedagogical competencies, assessment and classroom management competencies, culture and cross-culture competencies (Learning Matters, 2018). (See table 9).

And Balyer (2017), with a significant investigation about how teachers feel about their own teaching competencies, asked the teachers about Knowledge of subject matter, Knowledge of Learning, Administrating and developing teaching strategies, Demonstrating development adaptability skills (Balyer, 2017).

And, as the most relevant finding of the competencies the work requires, we found eight key competencies for primary school teaching that were proposed by Ding (2016) after a solid review. The author evaluates the key primary teacher's competencies needed in a classroom and work on a comparison between these key competencies and the teacher training process between China and Catalonia. The competencies the author stipulates are: Culture and cross-culture competencies; Professional Values, Attitudes, and Ethics competencies; Curriculum Knowledge; Pedagogical competencies; Classroom Management Competency; Emotional, Communicative and Social Competency; Assessment Competency; and Learning to learn (or life-long learning). Nevertheless, by understanding that these topics are in one way or another, included in the Ding's key competencies, - also some of the authors are in Ding's review - we

opted to use it as the base for data collection. Furthermore, the most important thing is that it was explicitly focused on the Primary School Teachers' competencies.

The theoretical framework of the primary teacher competencies form made by Ding (2016) has each competency followed by respective content and details. Thereby, culture and cross-culture competencies correspond to the different students, with different backgrounds, different wishes, previous knowledge, and so on. Thus, the teacher should be capable of teaching heterogeneous groups respecting each cultural or tradition difference (Ding, 2016). Classroom management competency means that the teacher should be able to guide the student's expected behavior and incite self-discipline. Also, to be capable of managing the teaching spaces effectively (Ding, 2016). For the assessment competency, one of the most critical themes in the 21st-century, the teacher has to be capable of assessing the learning outcomes and giving feedback to students and parents. For that, the teacher has to choose the right methods (Ding, 2016).

Regarding the pedagogical competencies, one of the pivotal themes in Teacher Education, the teacher should mostly demonstrate knowledge about the educational science foundations, knowledge of teaching and learning, and comprehension of the children's developmental psychology. Equally, the teacher should be able to use new technologies with pedagogical purposes accurately, be creative and have the critical thinking, plan and design classes, and be able to research on teaching contents (Ding, 2016). The curriculum knowledge address upon the subject matter and the curricular knowledge (Ding, 2016). Professional Values, Attitudes, and Ethics competencies are about having these values and being able to teach them to the students during pedagogical activities. Responsibility, autonomy, and sense of laws are also important (Ding, 2016).

The Emotional, Communicative and Social Competency that Ding (2016) talks about it is basically regarding the ability to recognize own and others' emotions and having skills to expressing it. As well as having a sense of social services, motivation and communication skills (Ding, 2016). Finally, the Learning to learn competency is nothing more than the life-long learning theory, where the individual is capable of pursuing his or her own learning path and reflecting on it (Ding, 2016). The author also mentions The Pedagogical Content Knowledge (PCK) in the Pedagogic competency, and it is a framework for education elaborated firstly by Shulman (1986) and studied by several researchers after that. Mishra & Koehler (2006) also worked on this framework, developing the Technological Pedagogical Content Knowledge (TPCK). See

tables 7 and 8 with all competencies' examples mentioned divided by author for a better panorama.

In summation, the authors mention almost the same competencies for the teacher but in different words. Being, in this way, the clearer that the path we are following to find primary school teachers' competencies might be correct.

Table 8 List of teachers' competencies by authors

Eight key primary teaching competencies (Ding, 2016)	**Teachers' Professional Competencies (Selvi, 2010)**	**21st-century teaching competencies (Nessipbayeva, n.d.)**	**Perception of competency for teaching profession (Balyer, 2017)**
Curriculum Knowledge	Field Competencies	Teachers demonstrate leadership	Knowledge of subject matter
Pedagogical Competencies	Research Competencies	Teachers establish a respectful environment for a diverse population of students	Knowledge of learning and teaching processes
Assessment Competencies	Curriculum Competencies	Teachers know the content they teach	Administrating and developing teaching strategies
Classroom management competence	Lifelong Learning Competencies	Teachers facilitate learning for their students	Demonstrating development adaptability skills
Emotional, Social and Communication competencies	Social-Cultural Competencies	Teachers reflect on their practice	
Culture and Crossculture competencies	Emotional Competencies		
Learning to learn competencies	Communication Competencies		
Professional values, attitudes, and ethical competencies	Information and Communication Technologies (ICT) Competencies		
	Environmental Competencies		

Table 9 List of teachers' competencies by institutions

The teachers' standards (Learning Matters, 2018)	**Supporting teacher competence development for better learning outcomes (European Commission, 2013)**	**INTASC Model Core Teaching Standards (Council of Chief State School Officers, 2013)**	**INTASC Model Standards for Beginning Teacher Licensing, Assessment, and Development (Council of Chief State School Officers, 2016)**
Set high expectations which inspire, motivate and challenge	Specialist knowledge of the subject(s) they teach.	Learner Development	The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches and creates learning experiences that make these aspects of subject matter meaningful for students.
Promote good progress and outcomes by pupils	The necessary pedagogical skills to teach them	Learning Differences	The teacher understands how children learn and develop, and can provide learning opportunities that support their intellectual, social, and personal development.
Demonstrate good subject and curriculum knowledge	Teaching to heterogeneous classes	Learning Environment	The teacher understands how students differ in their approaches to learning and creates instructional opportunities that are adapted to diverse learners.
Plan and teach well-structured lessons	Making effective use of ICT	Content Knowledge	The teacher understands and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills
Adapt teaching to respond to the strengths and needs of all pupils	Helping pupils to acquire transversal competences	Application of Content	The teacher uses an understanding of individual and group motivation and behavior to create a learning environment that encourages positive social interaction, active engagement in learning, and self-motivation.
Make accurate and productive use of assessment		Assessment	The teacher uses knowledge of effective verbal, nonverbal, and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom.
Manage behavior effectively to ensure a good and safe learning environment		Planning for Instruction	The teacher plans instruction based upon knowledge of subject matter, students, the community, and curriculum goals.
Manage behavior effectively to ensure a good and safe learning environment		Instructional Strategies	The teacher understands and uses formal and informal assessment strategies to evaluate and ensure the continuous intellectual, social, and physical development of the learner
		Professional Learning and Ethical Practice	The teacher is a reflective practitioner who continually evaluates the effects of his/her choices and actions on others (students, parents, and other professionals in the learning community) and who actively seeks out opportunities to grow professionally.
		Leadership and Collaboration	The teacher fosters relationships with school colleagues, parents, and agencies in the larger community to support students' learning and wellbeing.

5.3 The differences and similarities between pre-service teachers' perceptions of competencies they have gained and the competencies the Primary Education field actually requires.

As seen in the previous research questions, the field requires from Primary School Teachers' to be "complete," to be able to follow a certain amount of ethical rules, not only concerning the students or parents but the school as a whole: to the teacher role itself, to the community and society, as well, as being committed to all of it (Ding, 2016).

As shown in tables 5 and 6 found on RQ1, only six from fifteen analyzed items are seen as positive by the participants.

According to the students-teachers' perceptions, regarding the Primary School Teachers' Competencies, Teacher Education is successful in teaching only the Curriculum Knowledge Competencies, Pedagogic Competencies, and Culture and Cross-Culture Competencies to the majority.

"And, of course, we have learned practical matters like how to make the lesson plans following the curriculum or how to apply different ideas in your lesson (P4)."

"So, I think that the abilities and competencies we have learned the most were how to take from theory the base for practice in the classroom (P6)."

"Understanding students and realizing that there are many different types of students and, well, in general, there are many different types of people in the world (P2)."

The majority of participants also believe they learned the Tools to work as a teacher.

"I have had a lot of didactic tools. Different kinds of tasks which I could use with kids Art oriented nature education […] I think that I have got some basics that I can then mix and create (P1)."

And when asked if they feel ready or prepared to be a teacher, the student-teachers had some doubts about what to answer. They feel ready and not ready at the same time. It is possible to say that they are not confident about their own readiness.

"And, like, I'm about to graduate now in the spring. And somehow, I feel like I'm really not ready. I have no idea what I'm doing. But I also think that teaching is a profession that you actually learn by doing, so the practices that we have had really helped (P2)."

"Yeah. Maybe. I don't know. (P4)."

At the same time, half of the participants are confident and feel ready and prepared to work as teachers. However, they precisely attribute their positive response to this question to extracurricular or previous professional experience and not to the teacher training process.

"But it is not because I did the practice that I am prepared. It is because I was a member of AISEC. I learned a lot of things there. I was voluntary in many places and learned a lot of things. The majority of things that prepared me came from outside (P3)."

"But I feel prepared. It seems I have resourcefulness with this age group. […] Many colleagues having the same formation I had been unable to help pupils learn. This contact or communication thing did not come up during graduation. It was with me for a while. PIBID gave me a big part of my experience during graduation course time. And PID also helped (P8)."

PIBID and PID are voluntary teaching programmes that happen during teaching graduations in Brazil. Basically, the student-teachers have the opportunity to follow in-service teachers during classes and help them to prepare the lessons, being considered a great way to gain experience before working as a teacher.

Participants were also able to recognize that the competencies the teachers need are a combination of different factors which they should have the ability to use in a specific context (Nessipbayeva, n.d.). Something of concern is the fact that the other eleven themes were seen as negative on student-teachers' perceptions, or they didn't even recognize it during the interview.

"Both in my internship and also when I've been working substituting and so on. I have always felt that I was missing many of the competencies on how to be in, for example, with special needs kids. […] I don't feel that we have good tools to work with that kind of needs (P4)."

For example, when asked about the time for practice, if it was satisfactory, a participant said:

"I would say that it's the minimum. It's difficult because we don't know the children before. I hope that we could have more practice. But I know that in reality, it's not that easy (P1)."

Regarding the ICT skills, interviewees stated:

"IT… Somehow that's very limited actually. Is has been more kind of "up to you." For example, doing different group works, you can choose to do like a basic PowerPoint. It's up to you then

if you want to, for example, make like a fancy video or something like, it's possible, but personally, I haven't really done. Much more like basic PowerPoint presentations. I think we've had like one IT course, and it was very basic (P2)."

"As we were saying about the 21st-century skills: I don't think we have got so much of those. […] I'm not confident with those ideas. Like use of technology, for example, and that kind of things (P4)."

Some of the participants also included skills and competencies they believe should be present in Teacher Education courses.

"I somehow think that teacher would need time managing skills. At least what I have heard from students who have graduated and are now teaching is that the first two years are quite awful, because they are so hard and you have to do a lot of work. Many of those who I know have done a lot of their work during the evening and night time. During daytime they are teaching, but in the evenings, they are planning and searching information or trying to figure out what to do next (P1)"

Besides, the participants pointed the short time for practice and short time for all disciplines as a big problem. They additionally gave ideas for the solution of this issue: (1) a mentor to guide and support the in-service teachers in their first year of work, (2) full-time studies, and (3) even more years of study.

"Mentors at the school that you are working. I think that would be better. But it really would be nice to see that, especially in the first years, that tends to be the hardest because you're kind of learning everything at the same time (P2)."

"Instead of going superficially through all of them having time like different courses to go more deeply into educational theories (P2)."

"Maybe I would have more time of teaching like teaching practices and having also more support from the university. Supervision work on our practice won't be only on those teachers in the school but also on the lecturers from the university. When you are teaching, you don't really get to see what you are doing. So having someone with experience next to you could really help (P4)."

In total, six participants have shown the will for a mentor in first years. *(P2, P4, P5, P6, P7, P8).* And seven participants have shown the conscern about time in the sense of deepener the courses and theories' studies: *(P1, P3, P4, P5, P6, P7, P8).*

6 Discussion

In the discussion part, we try to understand what the results from three research questions brought to light in this study and define if the research aim was achieved. (1) The pre-service teachers' perceptions of the competencies the Teacher Education provides and (2) the competencies the work requires helped to find out what were (3) the differences and similarities between them to understand if they are aligned.

The pre-service teachers interviewed in this study demonstrated to be aware of only three from eight key teaching competencies chosen to represent the required competencies for the teaching practice in primary education. And this information is something that the pre and in-service teachers, institutions, and schools should all be aware of. After all, we can only do it in the right way if we know where we're doing it wrong.

The more aligned the Teacher Training programmes with the day-by-day teaching practice more the student-teacher and the beginning teacher are genuinely prepared to work with pupils and create the best learning environment. On the other hand, not gaining and practicing the essential competencies and skills to work with teaching and learning can jeopardize the beginning teachers' perceptions of the profession and the profession and Teacher Education courses itself. It is obvious that the daily teaching practice is not restrict to the teaching competencies, but looking to the Teacher Education courses and the teaching practice under this perspective it was possible to see that, at least on this issue, they both are not aligned, especially under the student-teachers' perspective. Nessipbayeva (n.d.), for example, shows on her study that teachers have their own set of required competencies and skills for the 21st-century one important reason: to teach the students their own set of 21st-century skills.

The fact that the student-teachers could not recognize if they have learned certain competencies can show a gap on the Teacher Education curriculum and/or the Teacher Education teaching itself, or yet, a lack of opportunity for the students to experience in practice their competencies to understand what they have learned and to feel confident about it. This, in the first place, demonstrates the necessity of further studies in order to analyze this specific issue more deeply and find more answers. Still, it also opens the door to the difference that more practice and experience could make. According to Kolb (1984), that bases his method of experiential learning in John Dewey, Kurt Lewin, and Jean Piaget's studies, the experience is needed in order to learn and, according to Korthagen et al. (2013), experience in Teacher Education is a

way to improve it and to minimize the gap scholars find between theory and practice. Hannukainen (2019), shows again the great importance of the practice demonstrated in a teacher training school in Helsinki and recalls that the experience in teaching while pre-service teachers it is important to bring theory and practice together.

Even though this is a small percentage of the student-teachers in the last years of Primary Teacher Education courses at the University of Oulu (in Finland) and UNIOESTE (in Brazil), their perceptions give us an idea of what is being successfully taught; an idea of where the students are having more difficulties and what topics are not present during the courses.

If the daily work as a teacher request certain competencies, the Teacher Education and its curriculum are the ones that should be able to align with the teachers' necessities (and, in this way, align with the students' needs too). And, as mentioned before, the teacher training should follow the same methods the in-service teacher are supposed to follow (Owens, 2013). Because, according to the author, teachers tend to repeat the same method of teaching they experienced as students, no matter what methods they have studied in theory.

The results of this research corroborate with the view of researchers that there are problems between the theory and practice on Teacher Training courses (Kolb, 1984; Korthagen et al., 2013; Sugarman, 1987; Turunen & Tuovila, 2012). And on the teaching profession, especially during the first years of teaching (Houston et al., 1979; Otto et al., 1979; Turunen & Tuovila, 2012; Varah et al., 1986). Furthermore, we can say there is a gap between the competencies a Primary School Teacher needs and the competencies Teacher Education is training or teaching the future teachers. And the fact that the interviewees answered as feeling confident due to external practical experiences shows again that experience for a pre-service teacher has a significant level of importance.

7 Conclusion

7.1 Main findings

The Teacher Education courses are probably doing what would be their best. However, based on the analysis, the student-teachers are not being entirely prepared by the University for the teaching profession. A gap between what is being taught and what is needed by the pre-service teachers in their future profession may have been causing a lot of trouble to the ones who depend on it.

The relatively short time for teaching practice, the low acquisition of teachers' competencies from the student-teachers, and the lack of a mentor's support from University or the school are some of the issues the pre-service teachers are facing that are establishing this gap. With the learning from the experience and practice added to the presence of a mentor, there would be no gap between the Teacher Education and the actual daily teaching practice since the student-teacher is on "ground" learning and verifying what competencies will be needed as an in-service teacher.

To have the Teacher Education entirely align with the exigencies of the teaching practice is not an easy task. Still, it is possible when teachers and institutions are interested in developing Education for the best of pupils' learning and in giving the best possibilities to its pre-service students to accomplish that.

7.2 Implications

The implications of any research imply the applicability of the results, and this study can be used as an example for the formulation of new studies that could analyze more profoundly or broadly the same topic, depending on the researchers' intention, expanding the knowledge about it.

This study can also be used as a resource for planning the curriculum on higher education courses, especially the Teacher Education, or as a starting point for local studies to reveal the specific issues faced on a course or institution. For enhancing the Teacher Education, it is important to know what kind of challenges the in-service teachers are focusing and so it is interesting that teachers educators and institutions always pay attention to the students' difficulties

in order to offer quality education, that prepare students for what they need and not for what academy or higher education institutions might be used to show in the curriculums.

7.3 Limitations and future research

One of the research limitations I faced was during the data collection with the lack of students willing to participate as interviewees in the data collection. The reasons were the lack of time and a large number of assignments to finish at that period.

In the very beginning, this research was focused on the Primary Teacher Education students' and the Primary School teachers' perceptions of the competencies required to work in the field and the competencies the teacher education is being able to cover. However, the strict protocol to reach people in schools and universities in Finland and their many activities forced a few changes to happen in the target group. Therefore, the answer to a research question had to be found in scientific articles instead of coming from participants. Also, the reduced number of participants difficult to have a broader view of the student-teachers' perceptions and to make the research more reliable, even though this is qualitative and content analysis research.

A methodology is always a choice, and it gives up some elements in favor of others, all to find the best way to understand a phenomenon. In this case, with the qualitative semi-structured one-o-one interview, I was able to understand the participants' answers more deeply and invite them to share more with the use of alternative questions and probes. Such a thing would not be possible if I were using questionnaires as the data collection method, for example. During data analysis, it was more evident that it was not possible to collect a clear answer of every participant about all the questions and topics during the interviews, and I dedicate that due to the different backgrounds and subjectivity of each participant. And even though I was using an in-depth interview method of collecting data and possessing its advantages, Creswell (2012), wrote about some interview method's disadvantages. Among them, the interview can be "deceptive and provide the perspective the interviewee wants the researcher to hear. Another disadvantage is that the presence of the researcher may affect how the interviewee responds" (Creswell, 2012, p. 208).

In this way, even having a structure to guide the interview, the answers might not allow the interviewer to follow it, being compelled to use flexibility and the ability to have answers for its questions. Again, without embarrassing or offending the interviewees. I, as a researcher,

tried to conduct the data collection and analysis unbiased and structured in order to get more authentic data as possible.

8 Evaluation

8.1 Validity and reliability

Qualitative research is often criticized because of the difficulty of making results proven as valid and reliable as quantitative research. Although, it is widely recognized that qualitative studies are necessary and able to achieve deepener results that quantitative methods would not be able to achieve (Golafshani, 2003; Noble & Smith, 2015).

In this way, to evaluate the credibility of research findings in qualitative methods, the terminology is adjusted to bring researchers to the right path for validity and reliability (Noble & Smith, 2015).

The Validity is approached as a Truth value and Reliability as Consistency (Noble & Smith, 2015). Truth value "Recognizes that multiple realities exist; the researchers' outline personal experiences and viewpoints that may have resulted in methodological bias; clearly and accurately presents participants' perspectives" (Noble & Smith, 2015, p. 34). And "Consistency Relates to the 'trustworthiness' by which the methods have been undertaken and is dependent on the researcher maintaining a 'decision-trail'; that is, the researcher's decisions are clear and transparent" (Noble & Smith, 2015, p. 34).

And as Golafshani (2003) states: "Reliability and validity are conceptualized as trustworthiness, rigor, and quality in qualitative paradigm" (p. 604). And since Noble & Smith (2015) declare that "Ultimately an independent researcher should be able to arrive at similar or comparable findings" (p. 34). The validity of the present study was guaranteed by two independent researchers, which coded 20% of the data, being the agreement measured with Cohen's Kappa value and resulting (k= 0,82).

Eisenhart & Howe (1992) described five standards for validity in qualitative educational research. Being the first standard: the fit between the research questions, data collection procedures and analysis techniques. The following standard: the effective application of specific data collection and analysis techniques. The third one: alertness to and coherence of prior knowledge. The fourth standard being: the value constraints (external and internal). And the fifth standard: the comprehensiveness.

In this manner, each segment of this study was elaborated following the above standards.

The research questions defined the data collection procedure in order to better answer it, and the same happened in determining the analysis techniques. Semi-structures one-on-one interviews and content analyses were the procedures that better fit the research questions since the intention was to understand the students' perceptions of the competencies they are or they are not learning from Teacher Education. I also chose the sampling method following the same standards and the non-probabilistic convenience sampling was the most probable choice once the focus group was very specific or strict (the last year students of Teacher Education) and this group was easy to access for being at the same university I was doing my studies.

After the data collection procedures and analysis techniques were aligned with the research questions, the second standard is to make a practical application of the chosen data collection and analysis techniques. So, to understand the students' perceptions that I mentioned above and to find a possible gap between Teacher Education courses and the teaching profession, the best groups for data collection were the pre-service teachers. They can speak from the inside of Teacher Education and the already available bibliography to understand what is expected from an in-service teacher.

"Linking research question with data collection and analysis techniques and competently applying the latter do not assure that a study will render credible conclusions, because studies also must be judged against a background of existing theoretical, substantive, or explicit practical knowledge" (Eisenhart & Howe, 1992, p. 659). To be in conformity to the third standard, I based the present study on already existing bibliography and researchers in the same field.

The external value constraint is assured once the studies on Teacher Training and the teaching practice are not yet worn-out, and each specific question about it gives the researchers a new angle to find answers.

As mentioned before, schools and teachers have to prepare students with the necessary skills to succeed in society and future work that are competitive and in a constant change. "This situation puts a greater emphasis on student quality. In this regard, the issue of teachers' professional competency becomes more important than ever" (Balyer, 2017, p. 231).

And the research ethics, which is the internal value constraint Eisenhart & Howe (1992) talk about, is present in this research from the moment data collection, was chosen. Because when

dealing with humans, it is essential that the work is based on respect, and that can always be found a better way to achieve the research goals without causing any harm or embarrassment for the participants. Always remembering to respect confidentiality, anonymity, and freedom of participation.

And the fifth standard, comprehensiveness, would be the intelligibly of the research after the gathering of all the four previous standards (Eisenhart & Howe, 1992).

8.2 Ethical statement

Once the "Ethical considerations are extremely important in educational research and researchers need to ensure that research is conducted in an ethical manner" (Basit, 2010, p. 56), this study was conducted ethically and responsibly. The participants were fully informed of the facts regarding the research, and the researcher made sure of acquiring the informed consent from all the participants. The participants' privacy, anonymity, and confidentiality were carefully preserved.

Moreover, participants were informed about the voluntary character of their participation, being able to stop the interview recording, or cancel their participation at any time.

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Appendix 1

Appendix 1 Interview protocol

Main questions	Alternative Questions
Background information **STUDENTS** Age: Current grade: Did you take a different higher education programme before Teacher Education?: Probes: Which one? Can you tell me a little bit more about that?	
A) What are the Teacher Education students' perceptions of competences education provide them?	RQ1
1- Can you list some of the most important or memorable things you have learned during the Teacher Education so far? Probes: Can you tell me a little bit more about that? Can you describe?	1a) What subject called your attention the most?
2- What teaching competencies or skills did you learn during these years of studies to be a teacher? Probes: -Do you think they are important?	2- Do you see these competencies/skills as relevant? In what occasions?
3- What are the competencies or skills a teacher needs to enter the working life? b. What are the most important ones? Why? c. In which situations these competencies or skills are needed?	3- c) Did you already experienced a situation where it was needed? How?
4- Are there some competencies that you think are required in the field but not covered in teacher education? What are these?	

C) What are the differences and similarities between the pre-service teachers' perceptions and the Primary Education curriculum? (How do the participants see the gap?)	RQ3
1- What were your expectations before starting Teacher Education?	1- What competences were you expecting to learn? And any specific skills?
2- Did the Teacher Education course meet your initial expectations? -If yes: How? If no: Why? Probes What were your initial expectations?	2- Was the Teacher Education course what you expected? Why?
3- How do you feel now about the future in the work field?	3- Would you say that this is still what you want?
4- Do you feel prepared for the work field? Probes: Do you think the skills you gained are enough?	4- Do you believe you acquired all the skills and competencies to work as a teacher?
5- a-Can you tell me about your experience teaching during the training? b. Do you think you had enough experience time to start working in the field by yourself now? (with no tutor or mentor) Probe: Why? c. Would you change something about that? Probes:-	
6- What (else) would you do differently in the course structure? Probes:What would you do differently to improve the course?	6- Would you change something in the course curriculum?

Appendix 2

Appendix 2 Example of interview transcription

P: I'm 24, and I'm in my fifth year of my studies. So masters-level studies and I have no different higher education before this.

R: So, can you list some of the most important or memorable things that you have learned during the teacher education course?

P: I think a lot of the most important things I have learned during these casual discussions with friends over like a cup of coffee or something and just like…talking about the things.

P: And I'm about to graduate now in the spring. And, somehow, I feel like I'm really not ready. I have no idea what I'm doing. But I think also teaching is a profession that you actually learn by doing so the practices that we have had really helped. Actually being able to be in the classroom and seeing the job in practice and the teachers' job has a lot of different dimensions that you need to have the knowledge of the different subjects but also to have kind of the social skills. Like empathy, for example, and kind of understanding of your students. It gets a lot more than just teaching math for example. Teaching goes a lot beyond just a textbook with the context that you're teaching about the content you are teaching. It's like a social Career.

R: What teaching competencies or skills did you learn during your studies?

P: Content is important to know or maybe important to [review], for example, some math skills like the content skills but I also like the social aspect like understanding students and realizing that there are many different types of students and well, in general, like there are many different types of people in the world. So trying to think how you do. Kind of reach out to every single student. And have talked about like the quality of everybody like everybody should be treated equally. Also, like kids are not necessarily challenging it's up to you to kind of find a way to teach them and to. Reach them and even if you like kids are. Acting out always behaving there's usually a reason behind it like there's something happening at the home or the kid is being teased or something, so being aware of the social aspects of. Teaching, I think that has really been emphasized. During the studies. [...]

Appendix 3

Appendix 3 Step of analyses

Comments/Episodes	P1	P2	P3	P4	P5	P6	P7	P8
1. Curriculum Knowledge Competencies	x	x		x	x	x	x	x
2. Pedagogic Competencies	x	x	x	x	x	x	x	x
3. Assessment Competencies							x	
4. Classroom Management Competencies		x	x				x	x
5. Emotional, Social and Communication Competencies	x	x		x				x
6. Culture and Cross-Culture Competencies	x	x	x	x			x	
7. Learning to learn (or life-long learning) Competencies			x					
8. Professional Values, Attitudes and Ethical Competencies				x			x	